

## SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-48

**Name:** Dante Lake

**County(ies):** Charles Mix

**Legal Description:** T95N-R62W-Sec. 4 & 9

**GPS:** 43°04'00.35"N 98°10'35.36"W

**Location from nearest town:** 2 miles north and ½ mile east of Dante

**Date of present survey:** June 15-17, 2015 (netting)

**Date of last survey:** June 3-5, 2013 (netting); October 7, 2013 and October 6, 2014 (electrofishing)

**Most recent lake management plan:** F-21-R-40 (January 1, 2008 to December 31, 2012)

**Management classification:** Warmwater Permanent

Primary Game Species	Secondary and Other Species
Bluegill	Black Bullhead
Largemouth Bass	

### PHYSICAL DATA

**Surface Area:** 18 acres

**Watershed:** 1,900 acres

**Maximum Depth:** 23 feet

**Mean Depth:** 11 feet

**Lake elevation at time of survey (field observations):** 6-7 feet low

**Contour map:** Yes

**Date:** 1973

### **Ownership of lake and adjacent lakeshore properties:**

Dante Lake is an 18-acre impoundment south east of the city of Dante in eastern Charles Mix County. The lake was created in 1937 when the Works Progress Administration (WPA) constructed an earthen dam on an unnamed tributary of Chateau Creek. To allow for the construction of the dam and creation of the lake, four easement contracts to the State of South Dakota were signed and recorded. The easements allow for public use of the dam grade, lake and a strip of land to a point 12 feet above the high water contour.

### **Watershed condition with percentages of land use types:**

The watershed of Dante Lake is approximately 1,900 acres or three square miles that is almost entirely privately owned agricultural and grassland. Land use in the watershed is 78% pasture and hay land composed of mostly native grasses, 20% cultivated cropland, and 2% roads, residences and trees.

**Fishing access:**

There is a good gravel access trail to a boat ramp on the northwest side of the lake for boat access. There is also access around the shoreline through easements for shore fishing opportunities. Shore fishing is limited by the amount of aquatic vegetation present during open water periods.

**Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):**

The dam grade is in good condition as well as the access road. There is a good boat ramp with a hard bottom past the last plank for access even during low water periods. No other structures are present.

**Field observations of aquatic vegetation condition:**

The submergent vegetation consisted of a few beds of sago pondweed and coontail in spots around the lake to depths of around 3 feet. Emergent vegetation consisted of thick cattails and rushes around the entire shoreline except on the dam grade, which is comprised of rocks.

**CHEMICAL DATA****Field observations of water quality and pollution problems:**

No obvious pollution problems were evident at the time of the survey. Water clarity was great with a secchi disc reading of 6.5 feet. Other water quality characteristics were measured in the field on June 15, 2015, using a HACH water quality kit and a Hanna multiparameter meter. Results are found in Table 1.

**Presence of a thermocline and depth from surface:** Yes, depth unknown

**Station for water chemistry located on attached map:** Yes

**Table 1.** Water chemistry results from Dante Lake, Charles Mix County, June 15, 2015.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/L)	HRD (mg/L)	pH	Cond. (μS/cm)	TDS (ppm)	Sal.	ORP	Secchi (ft)
A	Surface	77.0	6.45	52.6	174	2427	8.65	4550	2278	2.43	-175.3	6.5
A	15.3	65.4	1.95	61.0	256	2510	7.39	4533	2264	2.43	-537.8	

**BIOLOGICAL DATA****Methods:**

Dante Lake was sampled on June 15-17, 2015, with ten overnight trap net sets. The trap nets have 3ft x 5ft frames, 60ft leads, and ¾ inch knotted mesh. No experimental gill nets were set during this sampling period. No electrofishing was done this survey period as the lake continues to be very low and conductivity levels remain higher than effective electrofishing levels. Fish indices and statistics were completed using Winfin.

## Results and Discussion:

### Trap Net Catch

**Table 2.** Total catch of ten, overnight ¾-inch frame nets at Dante Lake, Charles Mix County, June 15-17, 2015.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	<div style="display: flex; align-items: center; justify-content: center;"> <div style="width: 10px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> <div style="width: 10px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> </div>	RSD-P	Mean Wr
Bluegill	484	82.9	48.4	± 10.6	66.1	15	0	111
Yellow Perch	61	10.4	6.1	± 3.4	1.2	64	2	96
Black Bullhead	39	6.7	3.9	± 2.6	1.0	15	15	109

\* Ten year mean (1981, 1983, 1987, 1992, 1995, 2000, 2006, 2009, 2010, 2013)

### Bluegill

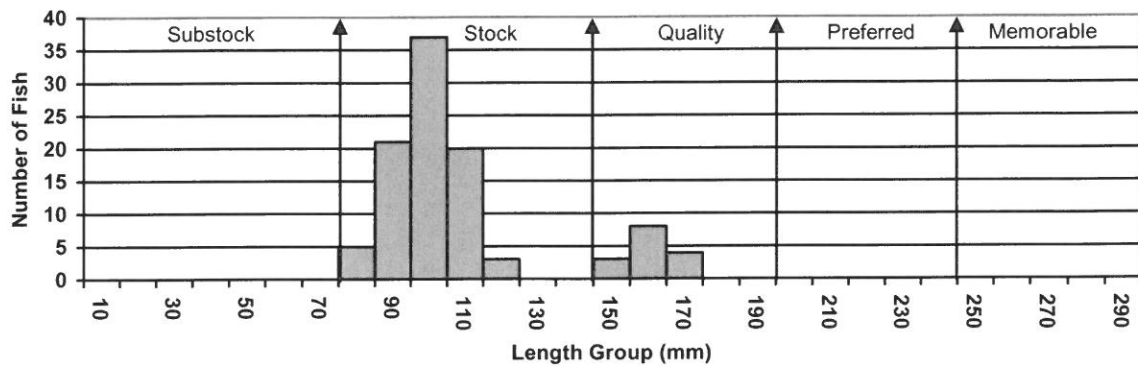
Bluegills continue to be the dominant species present in Dante Lake. The CPUE of 48.4 is above the 9.2 from the 2013 survey (Table 6) but below the 66.1 ten year mean (Table 2). Size structure has declined from the 2013 survey, but this can be due to a very strong year class that was produced in 2014 that is moving into the population. Figures 1 through 6 illustrate the length frequency histograms for the fish sampled the last six surveys. Growth is good with means right around statewide, regional and SLI means (Table 3). Condition is also good with a mean Wr of 111.

**Table 3.** Average back-calculated lengths (mm) for each age class of bluegill sampled from Dante Lake, Charles Mix County, 2015.

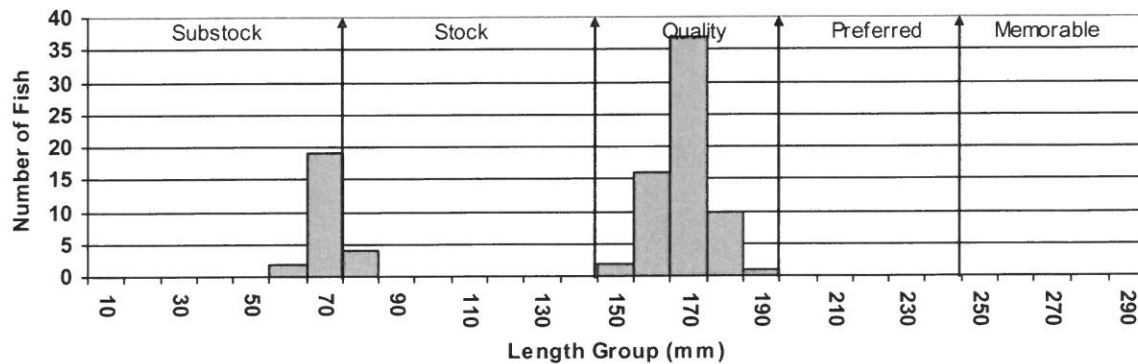
Year Class	Age	N	Back-calculated Age			
			1	2	3	4
2014	1	85	77			
2013	2	7	34	139		
2012	3	8	46	108	145	
2011	4	1	48	105	129	149
<b>All Classes</b>		<b>101</b>	<b>51</b>	<b>118</b>	<b>137</b>	<b>149</b>
Statewide Mean			55	103	141	166
Region II Mean			52	97	134	164
SLI* Mean			53	101	138	163

\* Small Lakes and Impoundments

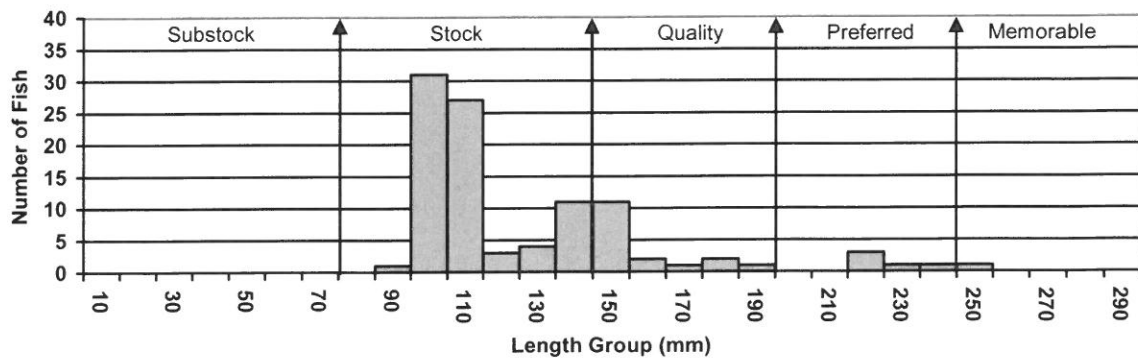
**Figure 1.** Length frequency histogram for bluegill sampled from Dante Lake, Charles Mix County, 2015.



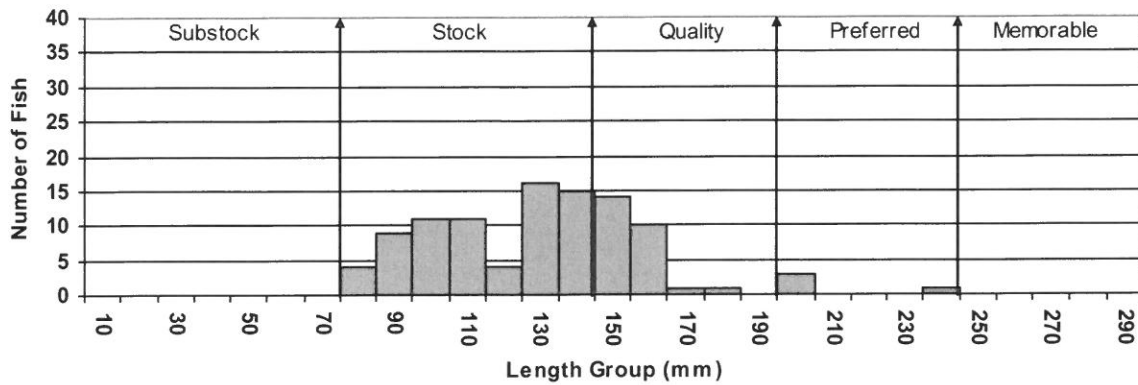
**Figure 2.** Length frequency histogram for bluegill sampled from Dante Lake, Charles Mix County, 2013.



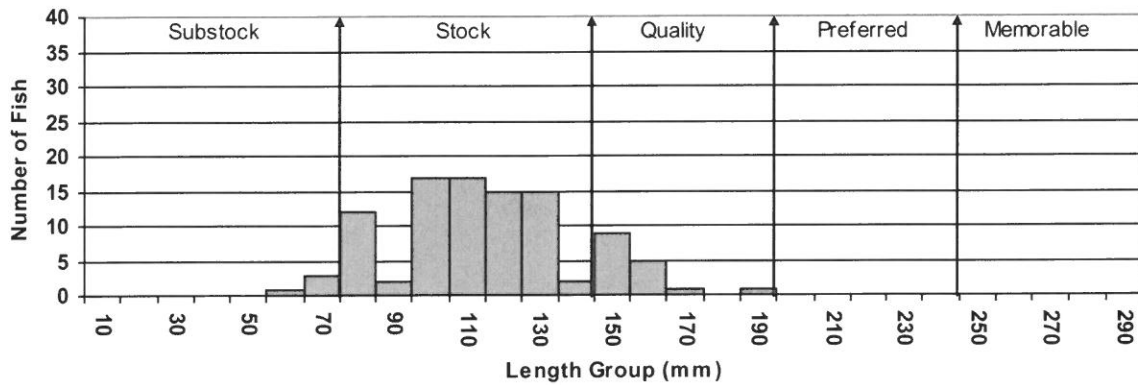
**Figure 3.** Length frequency histogram for bluegill sampled from Dante Lake, Charles Mix County, 2010.



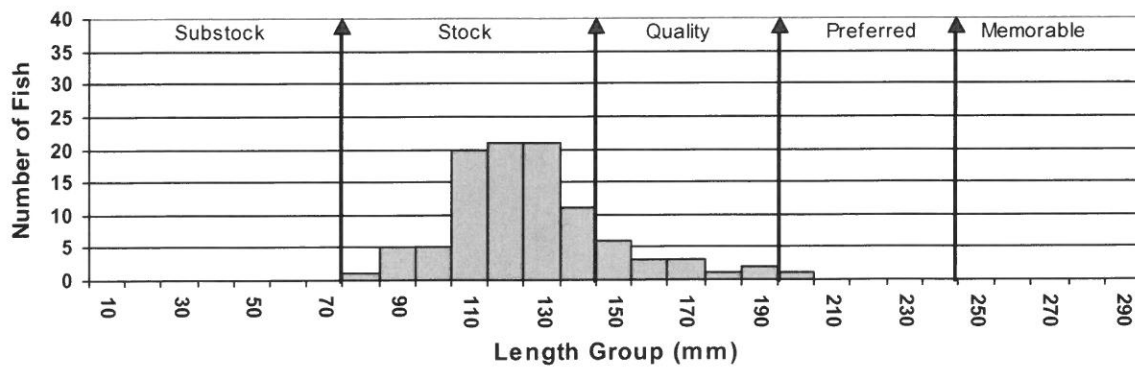
**Figure 4.** Length frequency histogram for bluegill sampled from Dante Lake, Charles Mix County, 2009.



**Figure 5.** Length frequency histogram for bluegill sampled from Dante Lake, Charles Mix County, 2006.



**Figure 6.** Length frequency histogram for bluegill sampled from Dante Lake, Charles Mix County, 2003.



## Yellow Perch

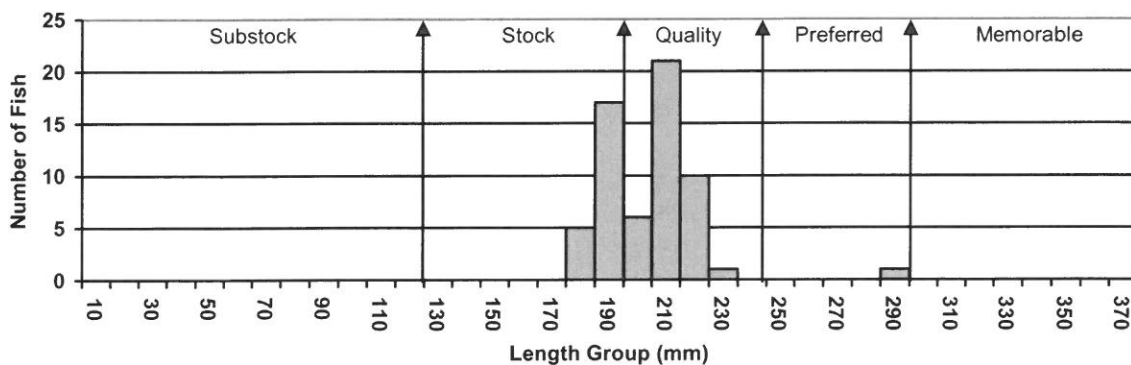
Yellow perch have made a surprising return to the population. They seem to always be sampled about every other survey or so but this survey the numbers are good. The CPUE of 6.1 is above the 0.1 from the 2013 survey (Table 6) as well as the 1.2 ten year mean (Table 2). Figure 7 illustrates the length frequency histogram of the fish sampled this survey. Growth is good with means above statewide, regional and SLI means (Table 4). Condition is also good with a mean Wr of 96. Hopefully the perch population continues to improve as they will make for a good secondary species present in the lake for anglers to target.

**Table 4.** Average back-calculated lengths (mm) for each age class of yellow perch sampled from Dante Lake, Charles Mix County, 2015.

Year Class	Age	N	Back-calculated Age				
			1	2	3	4	5
2014	1	51	173				
2013	2	9	166	199			
2010	5	1	89	218	243	269	282
<b>All Classes</b>		<b>61</b>	<b>143</b>	<b>209</b>	<b>243</b>	<b>269</b>	<b>282</b>
Statewide Mean			86	145	190	220	242
Region II Mean			91	152	196	219	242
SLI* Mean			87	142	185	205	219

\* Small Lakes and Impoundments

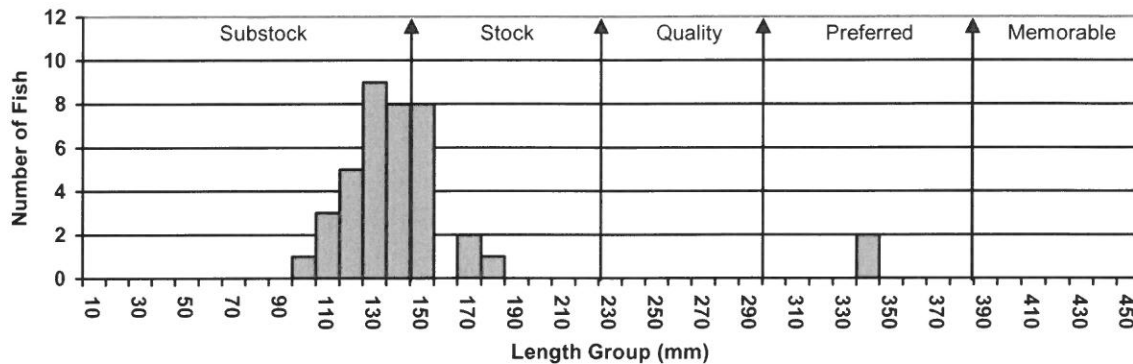
**Figure 7.** Length frequency histogram for yellow perch sampled from Dante Lake, Charles Mix County, 2015.



## **Black Bullhead**

Black bullheads continue to be sampled in Dante Lake in small numbers. The CPUE of 3.9 is above the 0.2 from the 2013 survey (Table 6) as well as the 1.0 ten year mean (Table 2). Figure 8 illustrates the length frequency of the fish sampled this survey with only a couple adult fish present and the population dominated by young fish. Condition is good with a mean Wr of 109. Hopefully a largemouth bass population can get reestablished to keep this population in check.

**Figure 8.** Length frequency histogram for black bullhead sampled from Dante Lake, Charles Mix County, 2013.



## **Other species**

Largemouth bass were the species most noticeably absent from the survey. No electrofishing was done due to the extremely low water conditions that have persisted along with the extremely high conductivity readings that make electrofishing almost impossible.

Black crappie, northern pike, channel catfish, walleye, pumpkinseed sunfish, fathead minnow and shortnose gar are the other species absent this survey that have been sampled in surveys past (Table 6).

**Table 5.** Stocking records from the last ten years for Dante Lake, Charles Mix County.

Year	Number	Species	Size
2004	100	Largemouth Bass	Juvenile
2006	2,580	Largemouth Bass	Fingerling
2012	102	Largemouth Bass	Juvenile
2013	624	Largemouth Bass	Large Fingerling
2014	600	Largemouth Bass	Juvenile
2014	650	Largemouth Bass	Fingerling
2015	630	Largemouth Bass	Juvenile

## RECOMMENDATIONS

1. Resurvey with trap nets and electrofishing in 2018.
2. Trap and transfer bluegill from Dante to use in other State waters where needed.
3. Stock largemouth bass adults, juveniles, and fingerlings to help reduce and manage the bluegill population.

**Table 6.** Trap net (TN) and electrofishing (EF) CPUE for all fish species sampled in Dante Lake, Charles Mix County since surveys of record in 1981.

Species	1981	1983	1987	1992	1995	2000	2003	2006	2009	2010	2013	2014	2015
BLB (EF)	--	--	--	--	--	--	--	--	--	--	--	--	--
BLB (TN)	--	1.6	1.3	0.3	4.1	2.3	--	0.1	0.2	0.1	0.2	--	3.9
BLC (EF)	--	--	--	--	--	--	--	--	--	--	--	--	--
BLC (TN)	--	--	1.4	--	0.1	--	--	--	--	--	--	--	--
YEP (EF)	--	--	--	--	--	--	--	--	--	--	--	--	--
YEP (TN)	6.25	5.3	--	--	--	--	--	--	0.4	--	0.1	--	6.1
LMB (EF)	--	--	--	--	--	--	0	39.0	--	0.0	2.0	2.0	--
LMB (TN)	0.4	1.6	--	--	--	--	--	--	--	--	--	--	--
NOP (EF)	--	--	--	--	--	--	--	--	--	--	--	--	--
NOP (TN)	0.3	--	--	0.4	0.3	--	--	--	--	--	--	--	--
CCF (EF)	--	--	--	--	--	--	--	--	--	--	--	--	--
CCF (TN)	--	0.1	0.1	--	1.3	--	--	--	--	--	--	--	--
WAE (EF)	--	--	--	--	--	--	--	--	--	--	--	--	--
WAE (TN)	--	1.0	--	--	--	--	--	--	--	--	--	--	--
BLG (EF)	--	--	--	--	--	--	2127	--	--	--	--	--	--
BLG (TN)	13.1	26.8	28.6	24.8	89.8	182.3	--	64.1	93.7	128.3	9.2	--	48.4
PUS (EF)	--	--	--	--	--	--	--	--	--	--	--	--	--
PUS (TN)	--	--	--	--	0.1	--	--	--	--	--	--	--	--
SHG (EF)	--	--	--	--	--	--	--	--	--	--	--	--	--
SHG (TN)	--	0.1	--	--	--	--	--	--	--	--	--	--	--
FHM (EF)	--	--	--	--	--	--	--	--	--	--	--	--	--
FHM (TN)	--	--	--	--	--	--	--	--	--	--	0.1	--	--

BLB – Black bullhead; BLC – Black crappie; YEP – Yellow perch; LMB – Largemouth bass; NOP – Northern pike; CCF – Channel catfish; WAE – Walleye; BLG – Bluegill; PUS – Pumpkinseed sunfish; SHG – Shortnose gar; FHM – Fathead minnow